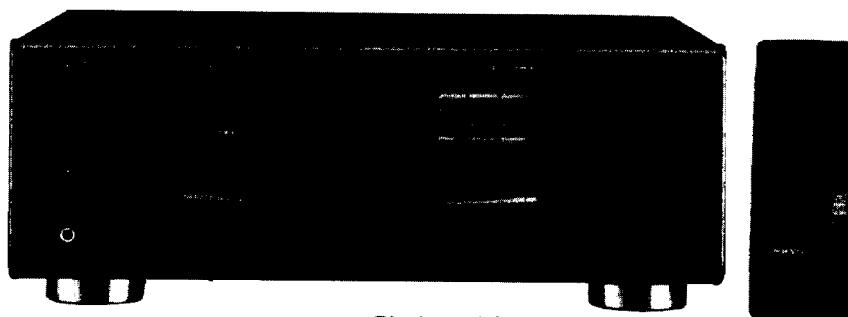


ONKYO SERVICE MANUAL

QUARTZ SYNTHESIZED TUNER AMPLIFIER

MODEL TX-SV515PROII



Black model

BMD, BMDN, BMDC	120V AC, 60Hz
BMP	230V AC, 50Hz
BMW	120/220V AC, 50/60Hz
BMQA	240V AC, 50Hz

SAFETY-RELATED COMPONENT WARNING!!
 COMPONENTS IDENTIFIED BY MARK Δ ON THE SCHEMATIC DIAGRAM AND IN THE PARTS LIST ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE THESE COMPONENTS WITH ONKYO PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL.
 MAKE LEAKAGE-CURRENT OR RESISTANCE MEASUREMENTS TO DETERMINE THAT EXPOSED PARTS ARE ACCEPTABLY INSULATED FROM THE SUPPLY CIRCUIT BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.

TABLE OF CONTENTS

Specifications.....	2
Service procedures.....	3
Exploded view.....	4
Parts list.....	5
Microprocessor descriptions.....	6
IC block diagrams and descriptions.....	9
Block diagram.....	19
Amplifier section.....	19
Tuner section.....	20
Adjustment procedures.....	22
Printed circuit board views from bottom side.....	25
Schematic diagram.....	31
Connection diagram of microprocessor.....	31
Tuner section.....	33
Power supply and video section.....	35
Audio section.....	37
Surround section.....	39
Printed circuit board-parts list.....	41
Packing view.....	46



SPECIFICATIONS

AMPLIFIER SECTION

Power Output:	Stereo mode
	Front L/R channels
	80 watts per channel min. RMS. at 8 ohms, both channels driven, from 20 Hz to 20,000 Hz, with no more than 0.08% total harmonic distortion.
Continuous Power output:	
	2 x 115 watts 4 ohms 1 kHz DIN
	2 x 90 watts 8 ohms 1 kHz DIN
	Surround mode and Multi source mode
	Front L/R and center channels
	55 watts per channel min. RMS. at 8 ohms 1,000 Hz, with no more than 0.08% total harmonic distortion.
Rear or Remote channels	
	20 watts per channel min. RMS. at 8 ohms 1,000 Hz, with no more than 0.8% total harmonic distortion.
Total Harmonic Distortion:	0.08% at rated power (FRONT)
IM Distortion:	0.08% at rated power (FRONT)
Damping Factor:	60 at 8 ohms (FRONT)
Sensitivity and Impedance:	Phono: 2.5 mV/50 kohms CD/Tape Play: 150 mV/50 kohms Tape Rec: 150 mV/2.2 kohms
Phono Overload:	120 mV RMS. at 1,000 Hz, 0.5% THD.
Frequency Response:	20 to 30,000 Hz, +/-1 dB
RIAA Deviation:	20 to 20,000 Hz, +/-0.8 dB
Tone Control:	BASS: +/-10 dB at 100 Hz TREBLE: +/-10 dB at 10,000 Hz
Signal to Noise Ratio:	PHONO: 80 dB (IHF A, 5 mV input) CD/TAPE: 100 dB (IHF A)
Muting:	- ∞ dB

VIDEO SECTION

Signal sensitivity and impedance
VDP/VCR input, output: 1 Vp-p, 75 ohms

TUNER SECTION

FM: (other models)

Tuning Range:	87.5 — 108.0 MHz (50 kHz steps)
Usable Sensitivity:	Mono: 11.2 dBf, 1.0 µV, 75 ohms 0.9 µV (S/N 26 dB, 40 kHz Devi.) 75 ohms DIN
	Stereo: 18.0 dBf, 2.2 µV, 75 ohms 23 µV (S/N 46 dB, 40 kHz Devi.) 75 ohms DIN
50dB Quieting Sensitivity:	Mono: 18.0 dBf, 2.2 µV, 75 ohms Stereo: 37.2 dBf, 20 µV, 75 ohms
Capture Ratio:	1.5 dB
Image Rejection Ratio:	85 dB
IF Rejection Ratio:	90 dB
Signal-to-Noise Ratio:	Mono: 73 dB Stereo: 67 dB
Selectivity:	50 dB DIN (± 300 kHz, 40 kHz Devi.)
AM Suppression Ratio:	50 dB
Harmonic Distortion:	Mono: 0.15 % Stereo: 0.25 %
Frequency Response:	30 — 15,000 Hz ± 1.5 dB
Stereo Separation:	45 dB at 1 kHz
AM:	

Tuning Range:

European models
522 — 1611 kHz (9 kHz steps)
USA, and Canadian models
530 — 1710 kHz (10 kHz steps)
Saudi Arabia and worldwide models
531 — 1602 kHz (9 kHz steps)

AM:

Usable Sensitivity:
30 µV
Image Rejection Ratio:
40 dB
IF Rejection Ratio:
40 dB
Signal-to-Noise Ratio:
40 dB
Total Harmonic Distortion:
0.7 %

TUNER SECTION

FM: (120V model)

Tuning Range:	87.5 — 108.0 MHz (50 kHz steps)
Usable Sensitivity:	Mono: 11.2 dBf, 2.0 µV Stereo: 17.2 dBf, 4.0 µV
50dB Quieting Sensitivity:	Mono: 17.2 dBf, 4.0 µV Stereo: 37.2 dBf, 40 µV
Capture Ratio:	1.5 dB
Image Rejection Ratio:	40 dB
IF Rejection Ratio:	90 dB
Signal-to-Noise Ratio:	Mono: 73 dB Stereo: 67 dB
Alternate Channel Attenuation:	55 dB
AM Suppression Ratio:	50 dB
Total Harmonic Distortion:	Mono: 0.15 % Stereo: 0.25 %
Frequency Response:	30 — 15,000 Hz ± 1.5 dB
Stereo Separation:	45 dB at 1 kHz/30 dB at 100 — 10,000 Hz
Muting Level:	17.2 dBf, 4.0 µV

GENERAL

Dimensions (W x H x D): 455 x 170 x 388 mm
17-15/16" x 6-11/16" x 15-5/16"
Weight: 13.5 kg (29.8 lbs)

SERVICE PROCEDURES

1. Replacing the fuses

For continued protection against fire hazard, replace only with same type and same rating fuse.

Circuit no.	Part no.	Description
F901	252166Y	△6.3A-UL/T-237,Primary fuse <D/W>
F902	252076	△3.15A-SE-EAK,Primary fuse <P/W/Q>
F903	252075	△2.5A-SE-EAK,AC outlet fuse <P>
F911,F912	252166Y	△6.3A-UL/T237,Secondary fuse <D>
	252079	△6.3A-SE-EAK,Secondary fuse <P/W/Q>

NOTE: <D> :Only 120V model

<P> :Only 230V model

<W> :Only Worldwide model

<P> :Only 240V model

2. Change of FM/AM band step.

With the exception of the Worldwide model, a BAND STEP selector switch is not provided.

(AM)

BAND STEP	R724	D711
10kHz→9kHz	Addition	Addition
9kHz→10kHz	Eliminated	Eliminated

In R724 Carbon resistor 1 kΩ
(Part No.417341024) is used.

In D711 Diode 1SS270A
(Part No.223205) is used.

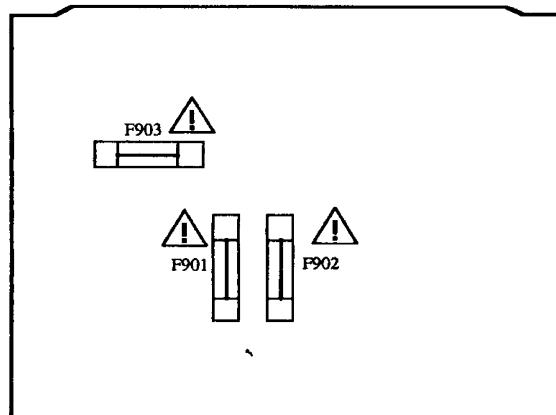
—Worldwide model—

Worldwide models are equipped with a step band selector switch. This switch is located on the back panel. This switch is set to 9kHz (AM) at the factory, but may have to be reset to 10kHz depending on the area where the unit is used.

AM step

Europe: 9kHz

U.S.A: 10kHz



POWER SUPPLY CIRCUIT PC BOARD



MAIN CIRCUIT PC BOARD

3. Memory preservation

This unit does not require memory preservation batteries. A built-in memory power back-up system preserves contents of the memory during power failures and even when the unit is unplugged. The unit must be plugged in and the power switch turned on and off once in order to charge the back-up system. Note that since this is not a permanent memory the power switch must be turned on and off a few times each month to keep the back-up system operative. The period of time during which memory contents are preserved after power has last been turned off varies depending on climate and placement of the unit. On the average, memory contents are protected over a period of 3 to 4 weeks (a minimum of 2 weeks) after the last time power has been turned off. This period is shorter when the unit is exposed to very high humidity or used in an area with an extremely humid climate.

4. Safety-check out

(Only U.S.A. model)

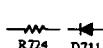
After correcting the original service problem perform the following safety check before releasing the set to the customer.

Connect the insulating-resistance tester between the plug of power supply cord and terminal GND on the back panel. Specifications: 3.3 Mohm ±10% at 500V.

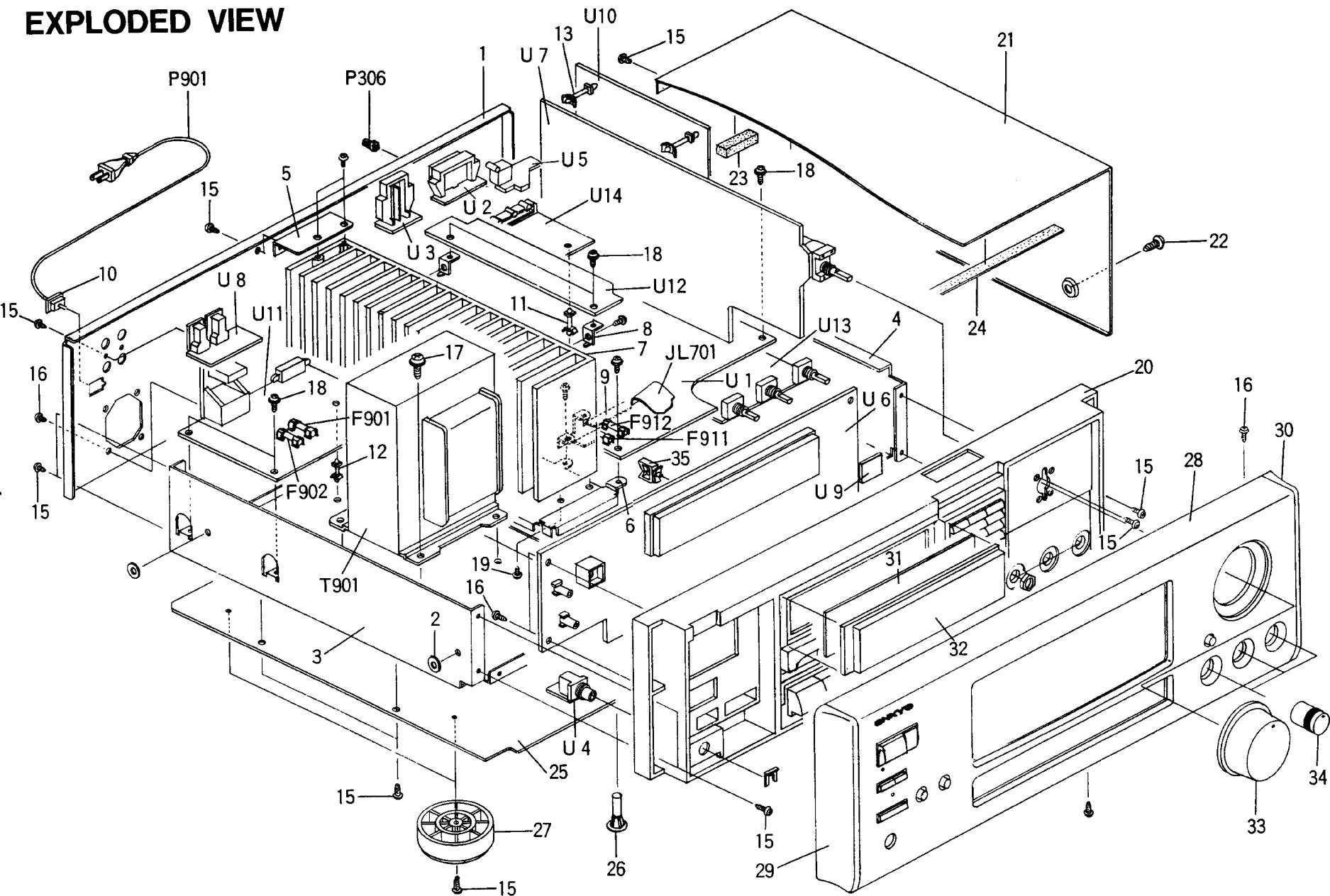
5. Change of voltage

Worldwide models are equipped with a voltage selector to conform with local power supplies. This switch is located on the back panel. Be sure to set this switch to match the voltage of the power supply in your area before turning the power switch on.

This switch is set to 220V at the factory. Voltage is changed by sliding the groove in the switch with the screwdriver to the right or left. Confirm that the switch has been moved all the way to the right or left before turning the power switch on.



DISPLAY CIRCUIT PC BOARD

EXPLODED VIEW

PARTS LIST

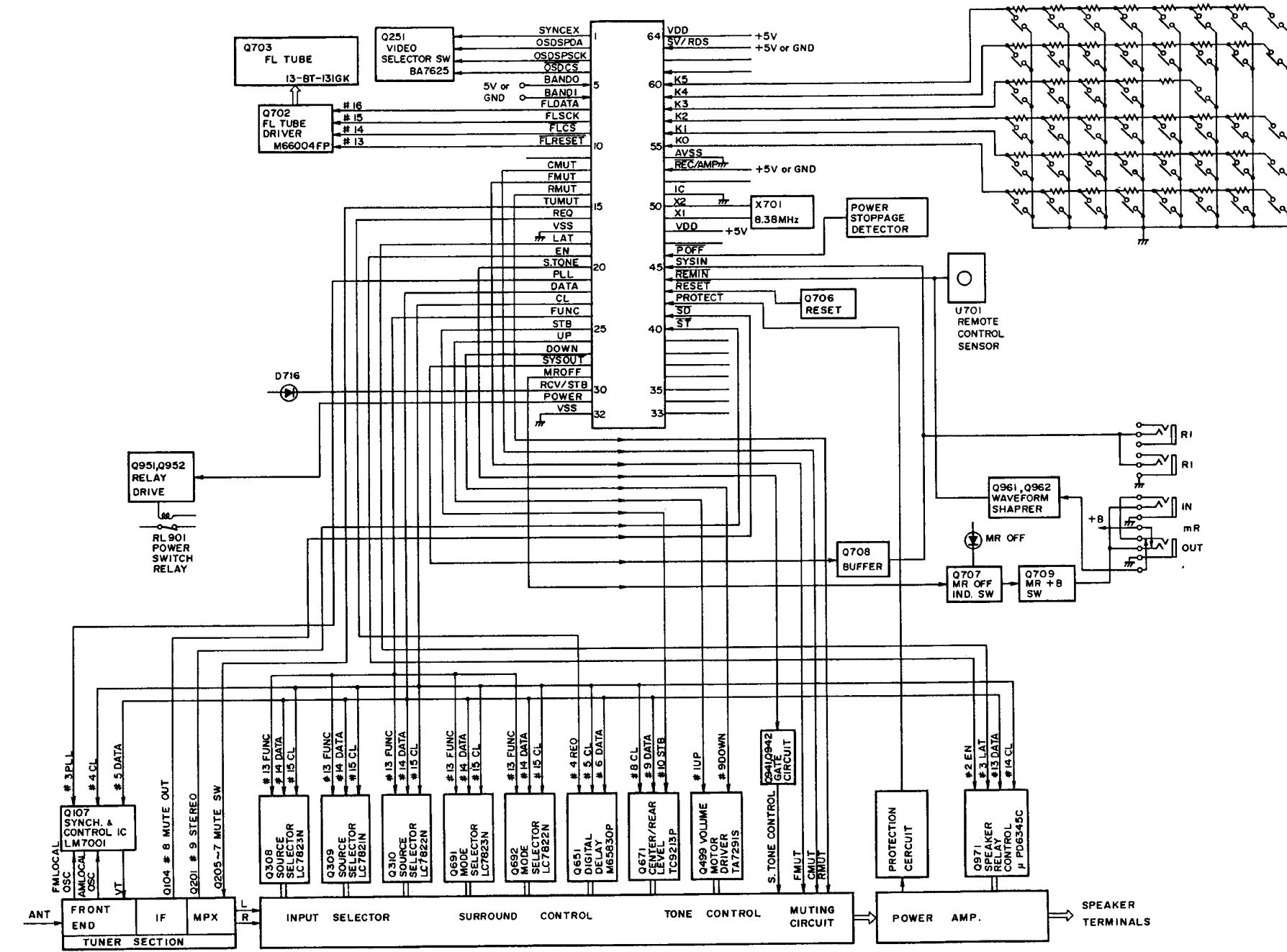
REF.NO.	PART NO.	DESCRIPTION	REF.NO.	PART NO.	DESCRIPTION	REF.NO.	PART NO.	DESCRIPTION
1	27121921Y	Rear panel <D>	JL701	2041322010 or 2047322012	NCFC1-322010 or NCFC7-322012,Flexible flat cable	U3	1A542594-5Y	NAETC-4694-5,Speaker terminal pc board ass'y <D>
	27121922Y	Rear panel <P>	P306	25060044	Terminal,ground		1A542594-5AY	NAETC-4694-5A,Speaker terminal pc board ass'y <P/W/Q>
	27121923Y	Rear panel <W>	P901	253163Y or 253174Y or 253175Y or 253164Y	▲ AS-UC-6 #18, ▲ Power supply cord <D/PX> ▲ AS-CEE-2, ▲ Power supply cord <P/W>	U4	1A542595-5Y	NAETC-4695-5,Headphone terminal pc board ass'y
	27121924Y	Rear panel <Q>		253188HIT	▲ AS-SAA,Power supply cord <Q> ▲ NSCT-2P697,AC outlet <Q>	U5	1A542596-5Y	NAETC-4696-5,Output terminal pc board ass'y
2	27270212	Spacer <P/W/Q>		25050904	* 2SC3856-O, * 2SC3856-Y, * 2SC3856-P,	U6	1A542597-5Y	NADIS-4697-5,Display circuit pc board ass'y <D>
3	27130717AY	Bracket,power transformer	Q505,Q506	2201653, 2201654, 2201655, 2202272 or 2202273	* 2SC3856-O, * 2SC3856-Y, * 2SC3856-P, * 2SC3907-R or * 2SC3907-O,Power transistors	1A542597-5AY	NADIS-4697-5A,Display circuit pc board ass'y <P/Q>	
4	27115255Y	Side bracket		2201663, 2201664, 2201665, 2202262 or 2202263	* 2SA1492-O, * 2SA1492-Y, * 2SA1492-P, * 2SA1516-R or * 2SA1516-O,Power transistors	1A542597-5BY	NADIS-4697-5B,Display circuit pc board ass'y <W>	
5	27141607AY	Retainer H	P902,P903	2202273	* 2SA1492-O, * 2SA1492-Y, * 2SA1492-P,	U7	1A542598-5Y	NAAF-4698-5,Surround circuit pc board ass'y <D/W/Q>
6	27130718AY	Bracket H		2202273	* 2SA1492-O, * 2SA1492-Y, * 2SA1492-P,	1A542598-5AY	NAAF-4698-5A,Surround circuit pc board ass'y <P>	
7	27160323Y	Radiator		2202273	* 2SA1492-O, * 2SA1492-Y, * 2SA1492-P,	U8	1A542599-5Y	NAETC-4699-5,RI/MR terminal pc board ass'y <D/P/Q>
8	27141530A	Retainer HS-2		2202273	* 2SA1492-O, * 2SA1492-Y, * 2SA1492-P,	1A542599-5BY	NAETC-4699-5B,RI/MR terminal pc board ass'y <W>	
9	27141532	Retainer PD-1		2202273	* 2SA1492-O, * 2SA1492-Y, * 2SA1492-P,	U9	1A542500-5Y	NASW-4700-5,STC switch pc board ass'y
10	27300750	⚠ Cord,bushing		2202273	* 2SA1492-O, * 2SA1492-Y, * 2SA1492-P,	U10	1A542501-5Y	NARF-4701-5,Tuner circuit pc board ass'y <D>
11	27190369	KGLS-22S,Holder	Q507,Q508	2202273	* 2SA1492-O, * 2SA1492-Y, * 2SA1492-P,	1A542501-5AY	NARF-4701-5A,Tuner circuit pc board ass'y <P/Q>	
12	27190480	KGLS-8S,Holder		2202273	* 2SA1492-O, * 2SA1492-Y, * 2SA1492-P,	1A542501-5BY	NARF-4701-5B,Tuner circuit pc board ass'y <W>	
13	27190062	KGLS-12S,Holder		2202273	* 2SA1492-O, * 2SA1492-Y, * 2SA1492-P,	U11	1A542502-5Y	NAPS-4702-5,Power supply circuit pc board ass'y <D>
14	801433	3SMS8W.SW+14B(BC),Sems screw		2202273	* 2SA1492-O, * 2SA1492-Y, * 2SA1492-P,	1A542502-5AY	NAPS-4702-5A,Power supply circuit pc board ass'y <P/Q>	
15	834430088	3TTS+8B(BC),Self-tapping screw	Q543	2202273	* 2SA1492-O, * 2SA1492-Y, * 2SA1492-P,	1A542502-5BY	NAPS-4702-5B,Power supply circuit pc board ass'y <W>	
16	833430080	3TTP+8P(BC),Self-tapping screw		2202273	* 2SA1492-O, * 2SA1492-Y, * 2SA1492-P,	U9	1A542500-5Y	NASW-4700-5,STC switch pc board ass'y
17	830440089	4TTC+8C(BC),Self-tapping screw		2202273	* 2SA1492-O, * 2SA1492-Y, * 2SA1492-P,	U10	1A542501-5Y	NARF-4701-5,Tuner circuit pc board ass'y <D>
18	831130088	3TTW+8B,Self-tapping screw		2202273	* 2SA1492-O, * 2SA1492-Y, * 2SA1492-P,	U11	1A542502-5Y	NAPS-4702-5,Power supply circuit pc board ass'y <D>
19	834430108	3TTS+10B(BC),Self-tapping screw		2202273	* 2SA1492-O, * 2SA1492-Y, * 2SA1492-P,	1A542502-5AY	NAPS-4702-5A,Power supply circuit pc board ass'y <P>	
20	27110754FY	Front bracket ass'y		2202273	* 2SA1492-O, * 2SA1492-Y, * 2SA1492-P,	1A542502-5BY	NAPS-4702-5B,Power supply circuit pc board ass'y <W>	
21	28184535Y	Top cover	Q544	2202273	* 2SA1492-O, * 2SA1492-Y, * 2SA1492-P,	U9	1A542500-5Y	NASW-4700-5,STC switch pc board ass'y
22	838440089	4TTB+8C(BC),Self-tapping screw		2202273	* 2SA1492-O, * 2SA1492-Y, * 2SA1492-P,	U10	1A542501-5Y	NARF-4701-5,Tuner circuit pc board ass'y <D>
23	28141132	6 t × 60 × 10,Cushion		2202273	* 2SA1492-O, * 2SA1492-Y, * 2SA1492-P,	U11	1A542502-5Y	NAPS-4702-5,Power supply circuit pc board ass'y <P/Q>
24	28140680	0.5 t × 390 × 10,Cushion		2202273	* 2SA1492-O, * 2SA1492-Y, * 2SA1492-P,	1A542502-5AY	NAPS-4702-5A,Power supply circuit pc board ass'y <W>	
25	27170300AY	Bottom panel		2202273	* 2SA1492-O, * 2SA1492-Y, * 2SA1492-P,	1A542502-5BY	NAPS-4702-5B,Power supply circuit pc board ass'y <D>	
26	27190926	KGLS-18RF,Holder	Q575,Q576	2202273	* 2SA1492-O, * 2SA1492-Y, * 2SA1492-P,	U9	1A542500-5Y	NASW-4700-5,STC switch pc board ass'y
27	27175251AY	Leg		2202273	* 2SA1492-O, * 2SA1492-Y, * 2SA1492-P,	U10	1A542501-5Y	NARF-4701-5,Tuner circuit pc board ass'y <D>
28	1A542121Y	Front panel ass'y		2202273	* 2SA1492-O, * 2SA1492-Y, * 2SA1492-P,	U11	1A542502-5Y	NAPS-4702-5,Power supply circuit pc board ass'y <P>
28A	27267822Y	Guide VOL	Q577,Q578	2202273	* 2SA1492-O, * 2SA1492-Y, * 2SA1492-P,	1A542502-5BY	NAPS-4702-5B,Power supply circuit pc board ass'y <W>	
28B	27267824Y	Guide POW		2202273	* 2SA1492-O, * 2SA1492-Y, * 2SA1492-P,	U9	1A542500-5Y	NASW-4700-5,STC switch pc board ass'y
29	28125251AY	End cap L		2202273	* 2SA1492-O, * 2SA1492-Y, * 2SA1492-P,	U10	1A542501-5Y	NARF-4701-5,Tuner circuit pc board ass'y <D>
30	28125252AY	End cap R	T901	2300891Y	▲ NPT-1168D,Power transformer <D>	U11	1A542502-5Y	NAPS-4702-5,Power supply circuit pc board ass'y <P>
31	28191661	Clear plate		2300892Y	▲ NPT-1168P,Power transformer <P>	1A542502-5AY	NAPS-4702-5A,Power supply circuit pc board ass'y <Q>	
32	28133299Y	Back plate		2300893Y	▲ NPT-1168DG,Power transformer <W>	1A542502-5DY	NAPS-4702-5D,Power supply circuit pc board ass'y <W>	
33	28324775A	Knob VOLUME		2300894Y	▲ NPT-1168Q,Power transformer <Q>	U9	1A542500-5Y	NASW-4700-5,STC switch pc board ass'y
34	28324376A	Knob TONE	U1	1A542592-5Y	NAAR-4692-5,Main circuit pc board ass'y <D>	U10	1A542501-5Y	NARF-4701-5,Tuner circuit pc board ass'y <P>
35	880009	Plastic rivet <P>		1A542592-5AY	NAAR-4692-5A,Main circuit pc board ass'y <P/W/Q>	U11	1A542502-5Y	NAPS-4702-5,Power supply circuit pc board ass'y <W>
F901	252166Y	⚠ 6.3A-UL/T-237,Primary fuse <D/W>		1A542592-5AY	NAAR-4692-5A,Main circuit pc board ass'y <P/W/Q>	1A542503-5Y	NAAF-4703-5A,Rear amplifier pc board ass'y <D>	
F902	252076	⚠ 3.15A-SE-EAK,Primary fuse <P/W/Q>		1A542592-5AY	NAAR-4692-5A,Main circuit pc board ass'y <P/W/Q>	1A542503-5AY	NAAF-4703-5A,Rear amplifier pc board ass'y <P/W/Q>	
F903	252075	⚠ 2.5A-SE-EAK,AC outlet fuse <P>	U2	1A542593-5Y	NAETC-4693-5,Center speaker terminal pc board ass'y <D>	U13	1A542504-5Y	NAAF-4704-5,Tone control circuit pc board ass'y
F911,F912	252166Y	⚠ 6.3A-UL/T-237,Secondary fuse <D>		1A542593-5AY	NAETC-4693-5A,Center speaker terminal pc board ass'y <P/W/Q>	U14	1A542505-5Y	NAETC-4705-5,Video circuit pc board ass'y
	252079	⚠ 6.3A-SE-EAK,Secondary fuse <P/W/Q>						

NOTE: THE COMPONENTS IDENTIFIED BY MARK ▲ ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE ONLY WITH PART NUMBER SPECIFIED.

NOTE: <D>:120V model only
<P>:230V model only
<W>:Worldwide model only

<Q>:240V model only
<PX>:PX model only

MICROPROCESSOR DESCRIPTIONS



Terminal Description

Pin No.	Function	I/O	Description												
1	SYNCEX	O	Video signal control A output terminal.												
2	OSDSPDA	O	Video signal control D output terminal.												
3	OSDSPSCK	O	Video signal control B output terminal.												
4	OSDCS	O	Video signal control C output terminal.												
5	BAND0	I	Initializing input terminal for FM/AM band region.												
6	BAND1	I													
7	FLSDATA	O	Connect to the terminal SDATA of Fluorescent tube driver M66004FP. (Q702)												
8	FLSCK	O	Connect to the terminal SCK of Fluorescent tube driver M66004FP.												
9	FLCS	O	Connect to the terminal CS of Fluorescent tube driver M66004FP.												
10	FLRST	O	Connect to the terminal RESET of Fluorescent tube driver M66004FP.												
11	PLAYER	O	Player control output terminal. Not used.												
12	CENTMUT	O	Muting output terminal for the center amplifier.												
13	FRONTMUT	O	Muting output terminal for the front amplifier.												
14	REARMUT	O	Muting output terminal for the rear amplifier.												
15	TU MUT	O	Muting output terminal for the tuner.												
16	REQ	O	Connect to the terminal REQ of Digital delay M65830P.(Q651)												
17	VSS	-	Ground terminal												
18	LAT	O	Connect to the terminal LAT of Output extended IC μ PD6345C.(Q971)												
19	EN	O	Connect to the terminal EN of Output extended IC μ PD6345C.												
20	S.TONE	O	Selective tone control output terminal.												
21	PLL	O	Connect to the terminal CE of PLL IC.(Q107)												
22	DATA	O	Connect to the terminal DI of Analog switches LC7821N,LC7822N, and LC7823N, the terminal DATA of PLL IC LM7001, the terminal DATA of Electro volume TC9213P, the terminal DATA of Digital delay M65830P, and the terminal SIN of Output extended IC μ PD6345C.												
23	CL	O	Connect to the terminal CL of Analog switches LC7821N,LC7822N, and LC7823N, the terminal CL of PLL IC LM7001, the terminal CK of Electro volume TC9213P, the terminal SCK of Digital delay M65830P, and the terminal SCK of Output extended IC μ PD6345C.												
24	FUNC	O	Connect to the terminal CE of Analog switches LC7821N,LC7822N, and LC7823N. (Q309,Q310,Q692,Q308 and Q691)												
25	STB	O	Connect to the terminal STB of Electro volume TC9213P. (Q671)												
26	VOLUP	O	Volume UP/DOWN control output. (Q499) <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>Operation</td> <td>#27</td> <td>#26</td> </tr> <tr> <td>Stop</td> <td>H</td> <td>H</td> </tr> <tr> <td>Volume up</td> <td>L</td> <td>H</td> </tr> <tr> <td>Volume down</td> <td>H</td> <td>L</td> </tr> </table>	Operation	#27	#26	Stop	H	H	Volume up	L	H	Volume down	H	L
Operation	#27	#26													
Stop	H	H													
Volume up	L	H													
Volume down	H	L													
27	VOLDOWN	O													
28	SYSOUT	O	System code output terminal.												

VIDEO SIGNAL CONTROL OUTPUT

Input Selector

#1	#3	SOURCE
L	L	VIDEO-3
H	L	VIDEO-2
L	H	
H	H	VIDEO-1

Recording Selector

#4	#2	SOURCE
L	L	VIDEO-3
H	L	VIDEO-2
L	H	
H	H	VIDEO-1
Same as #1	Same as #3	Other position
Same as #1	Same as #3	Multi mode

Pin No.	Function	I/O	Description
29	<u>MR</u>	O	MULTI ROOM indicator control output.
30	<u>STBY/RECV</u>	O	STAND-BY/RECEIVED indicator control output.
31	<u>POWER</u>	O	Power switch relay control output.
32	<u>VSS</u>		Ground terminal.
33	—	O	Not used.
34	—	O	Not used.
35	—	O	Not used.
36	—	O	Not used.
37	—	O	Not used.
38	—	O	Not used.
39	—	I	Not used.
40	<u>STEREO</u>	I	Stereo detection input terminal.
41	<u>SD</u>	I	Broadcast detection input terminal.
42	<u>PROTECT</u>	I	Protection circuit operation detection input terminal.
43	<u>RESET</u>	I	System reset input terminal.
44	<u>REMIN</u>	I	Remote control signal input terminal.
45	<u>SYSIN</u>	I	System code input terminal.
46	<u>POFF</u>	I	Detection input terminal for the stoppage of electric current.
47	—	I	Not used.
48	<u>VDD</u>		Power supply terminal.(+5V)
49	X2		Ceramic resonator connection terminal for the main system clock .
50	X1		Connect the ceramic resonator 8.38 MHz.
51	IC		Connect to the ground terminal.
52	XT2		Not used.
53	XT1		
54	<u>AVSS</u>		Ground terminal of A/D converter.
55	K0	I	Operation key connection terminals.
56	K1	I	
57	K2	I	
58	K3	I	
59	K4	I	
60	K5	I	
61	—		Not used.
62	<u>MODE</u>	I	Initializing input terminal for Receiver or Amplifier.
63	<u>AVDD</u>		Analogue power supply terminal of A/D converter. (+5V)
64	<u>AVREF</u>		Reference voltage input terminal of A/D converter.

Initializing Input

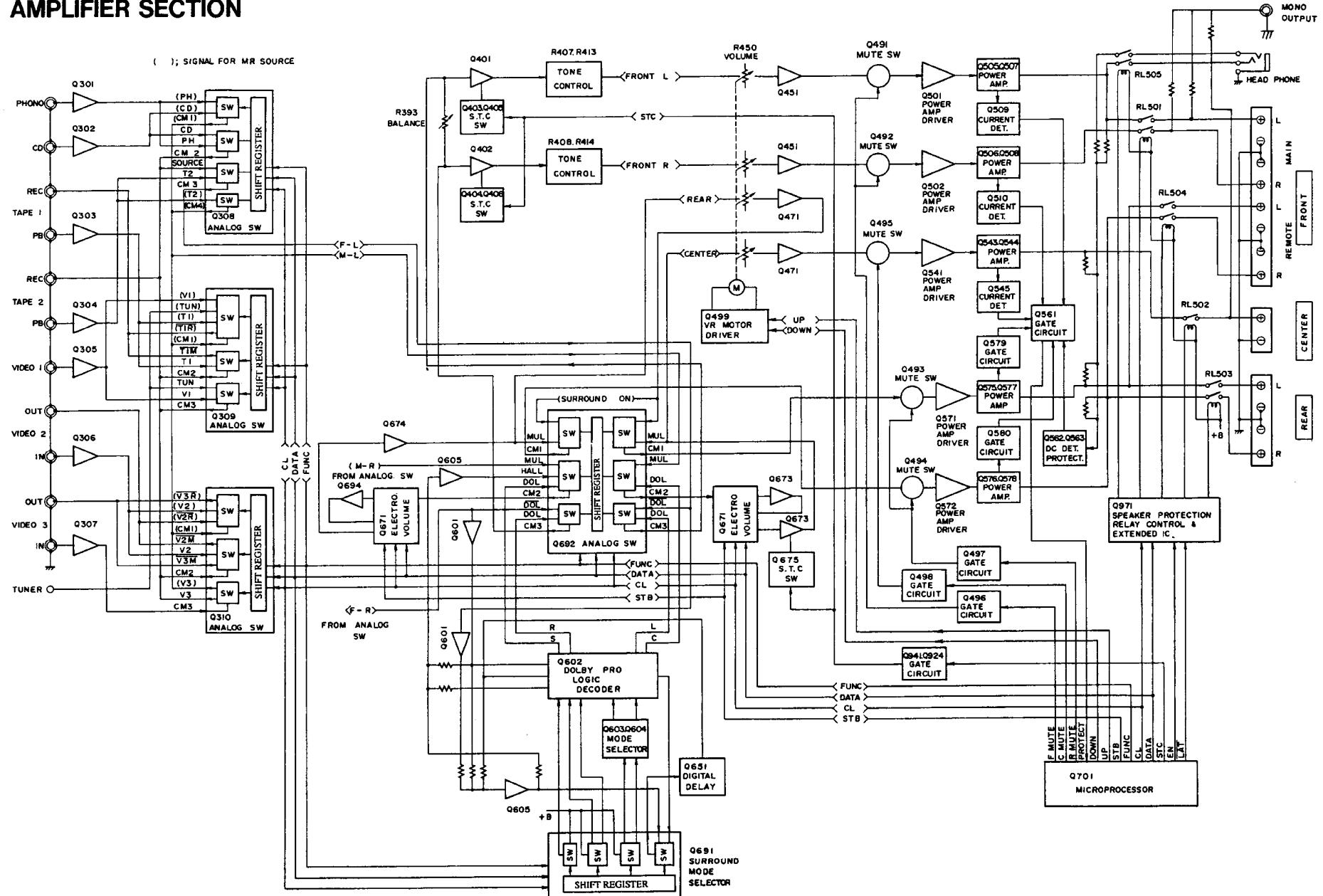
#7,#6

BAND1	BAND0	Regin	Band	Frequency Range	Channel Space
0	0	U.S.A.	FM	87.50~108.00MHz	50kHz
			AM	530~1710kHz	10kHz
0	1	Europe	FM	87.50~108.00MHz	50kHz
			AM	530~1710kHz	9kHz
1	0	Worldwide	FM	87.50~108.00MHz	50kHz
			AM	530~1710kHz	9kHz
1	1	Japan	FM	87.50~108.00MHz	100kHz
			AM	530~1710kHz	9kHz

#62

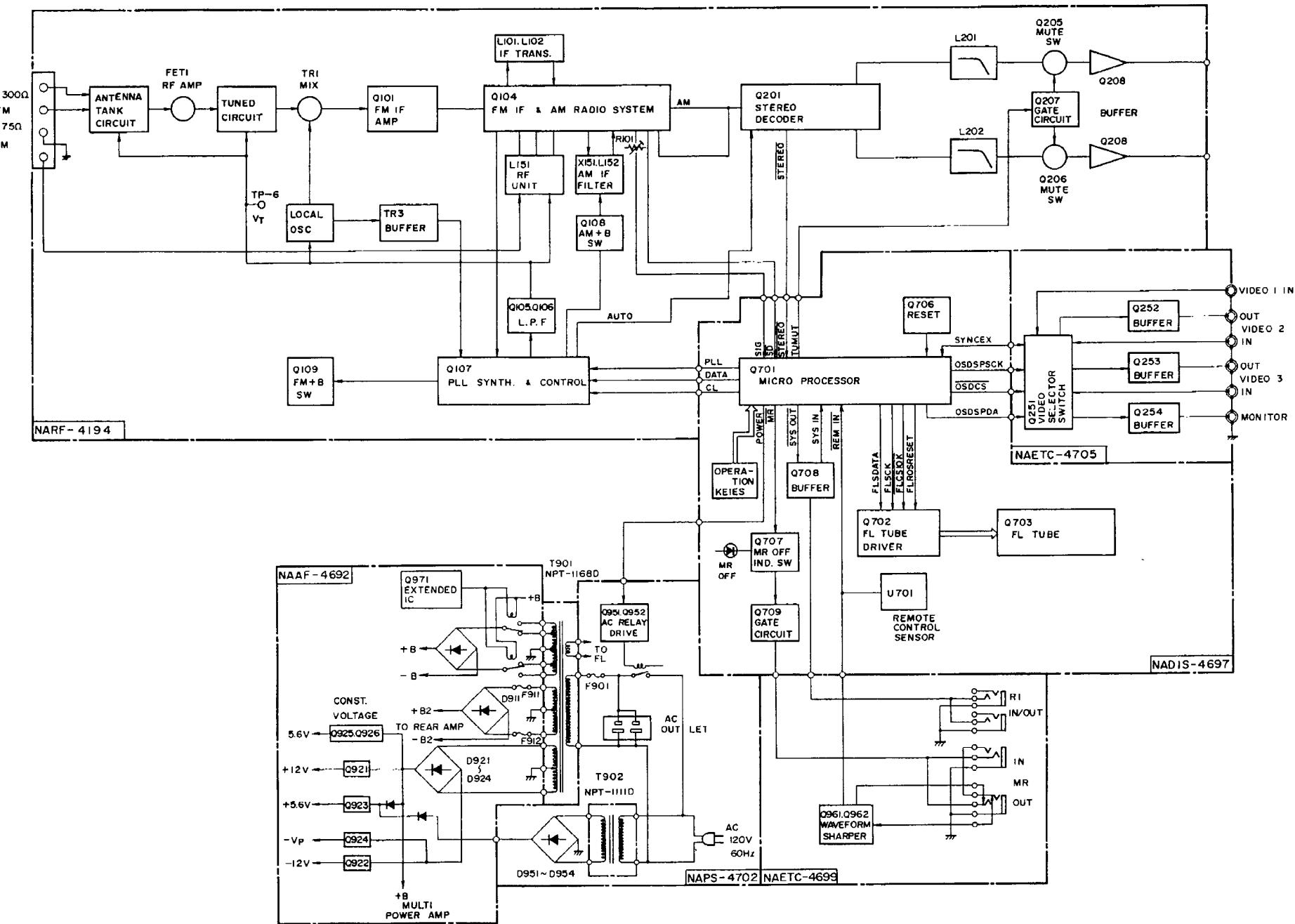
MODE	OPERATION
0	Receiver
1	Amplifier

BLOCK DIAGRAM AMPLIFIER SECTION

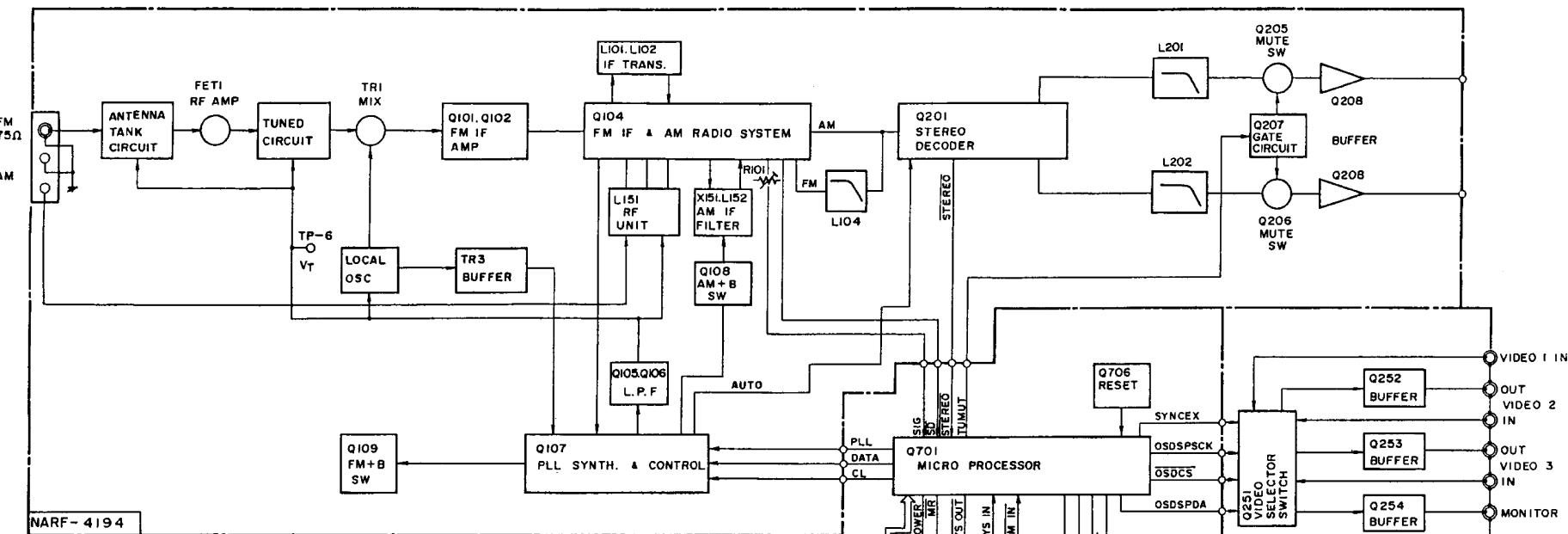


BLOCK DIAGRAM

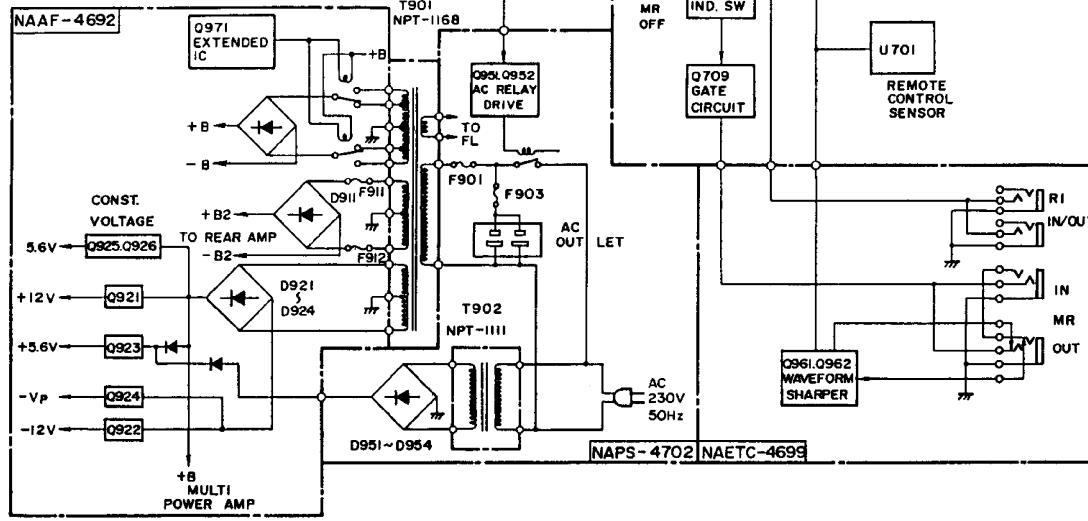
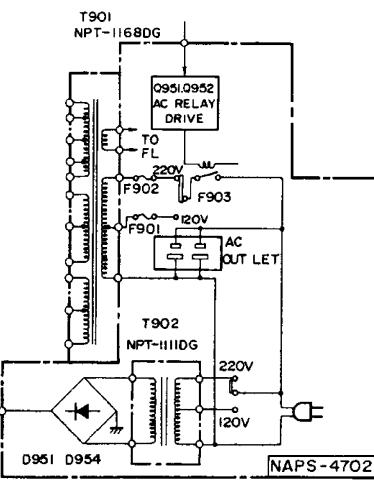
TUNER SECTION (120V model)



(Other models)



WORLDWIDE MODEL



ADJUSTMENT PROCEDURES

● Preparation

1. Input

FM mono : 1 kHz, 75kHz devi., 60dB/ μ V

FM stereo : 1 kHz, 75kHz devi., 60dB/ μ V

Pilot signal 19kHz 7.5kHz devi.

AM : 400Hz 30% mod.

2. Outputs

Connect the non-inductive type resistors of 8ohms to the main speaker, remote speaker, and rear speaker terminals unless otherwise noted.

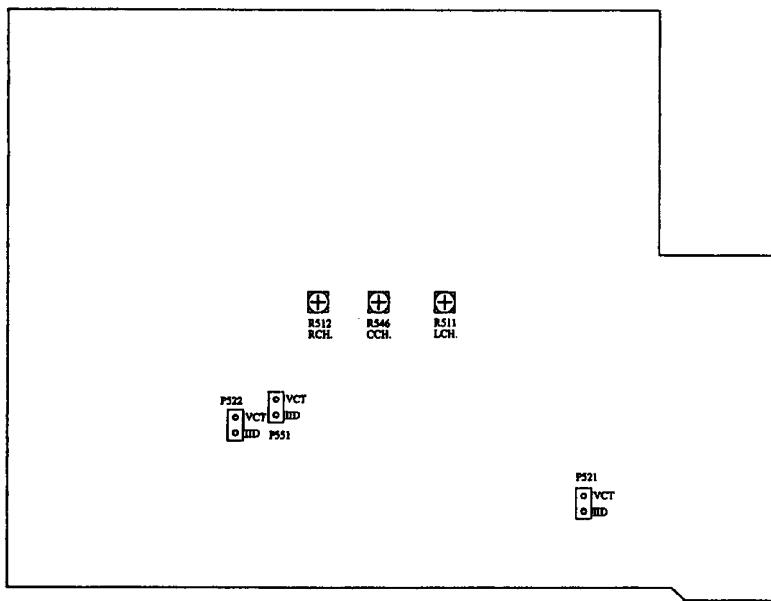
4. Standard Knob Position

TAPE MONITOR 2	OFF
VOLUME.....	Maximum
BASS/TREBLE/BALANCE.....	Center
MUTING.....	OFF
REC SELECTOR.....	SOURCE
INPUT SELECTOR.....	CD
SPEAKERS	ON
S.T.C.....	OFF

3. Initializing of unit

1. Press and hold down the CD button, then press the POWER button.
2. "Test-" is displayed on the display for approximately 5 seconds.
3. While "Test-" is displayed, unplug the TX-SV515PROII's power cord from its AC outlet, then "Test-" will disappear.
4. Preset memory and parameters stored in memory, such as surround are initialized and will return to the factory settings.

SURROUND MODE.....	OFF
CENTER MODE.....	WIDE
DELAY TIME.....	20mS
MULTI/REAR LEVEL	Center
MR OFF.....	ON



MAIN CIRCUIT PC BOARD

Amplifier section

Idling Current Adjustment

Connect the DC voltmeter to the terminals P521, P522, and P551 (VCT and IID) on the main circuit pc board.

Adjust the trim resistors R511, R512 and R546 so that the indicator of voltmeter becomes $5 \pm 0.5\text{mV}$.

NOTE: Adjust after switching on for 5 minutes.

FM section

Item	Step	Connection of instrument	FM SG output	Stereo modulator output	Tuning frequency	Output indicator	Adjustment point	Adjust for	Remarks
FM IF/RF	1	Fig.1	99.1MHz 1kHz 75kHz devi. 65dBf(60dB)	—	99.1MHz	DC voltmeter	L101	$0 \pm 20\text{mV}$	FM MUTE/MODE switch:ON/STEREO Repeat the steps 1 and 3 until no further adjustment is necessary.
	2					AC voltmeter	IIFT on the front end	Maximum	
	3					Distortion analyzer	L102	Minimum	
VCO		Fig.2	99.1MHz 1kHz 75kHz devi. 65dBf(60dB)	—	99.1MHz	Frequency counter	R201	$19\text{kHz} \pm 10\text{Hz}$	
Stereo Distortion		Fig.3	99.1MHz Ext. mod. 65dBf(60dB)	Channel L or R 1kHz	99.1MHz	Distortion analyzer	IIFT on the front end	Minimum	Don't turn more than $\pm 180^\circ$
Stereo Separation	1	Fig.3	99.1MHz Ext. mod. 65dBf(60dB)	Channel L 1kHz	99.1MHz	Channel R AC voltmeter	R202	Minimum	Maximum and same separation
	2			Channel R 1kHz		Channel L AC voltmeter		Minimum	
Muting Level		Fig.3	99.1MHz 17.2dBf(12dB) <19.2dBf(14dB)>	—	99.1MHz	Oscilloscope	R101	Signal output	

NOTE:< >:230V and Worldwide models

AM section

120V model

Step	AM SG output	Tuning Frequency	Output Indicator	Adjustment point	Adjust for
1		530kHz	Digital DC voltmeter	OSC coil on RF block L151	$1.4 \pm 0.2\text{V}$
2	600kHz 400Hz 30% mod. 60dB/m	600kHz	AC voltmeter	RF coil on RF block L151	Maximum
3	990kHz 400Hz 30% mod. 60dB/m	990kHz	AC voltmeter	L152	Maximum

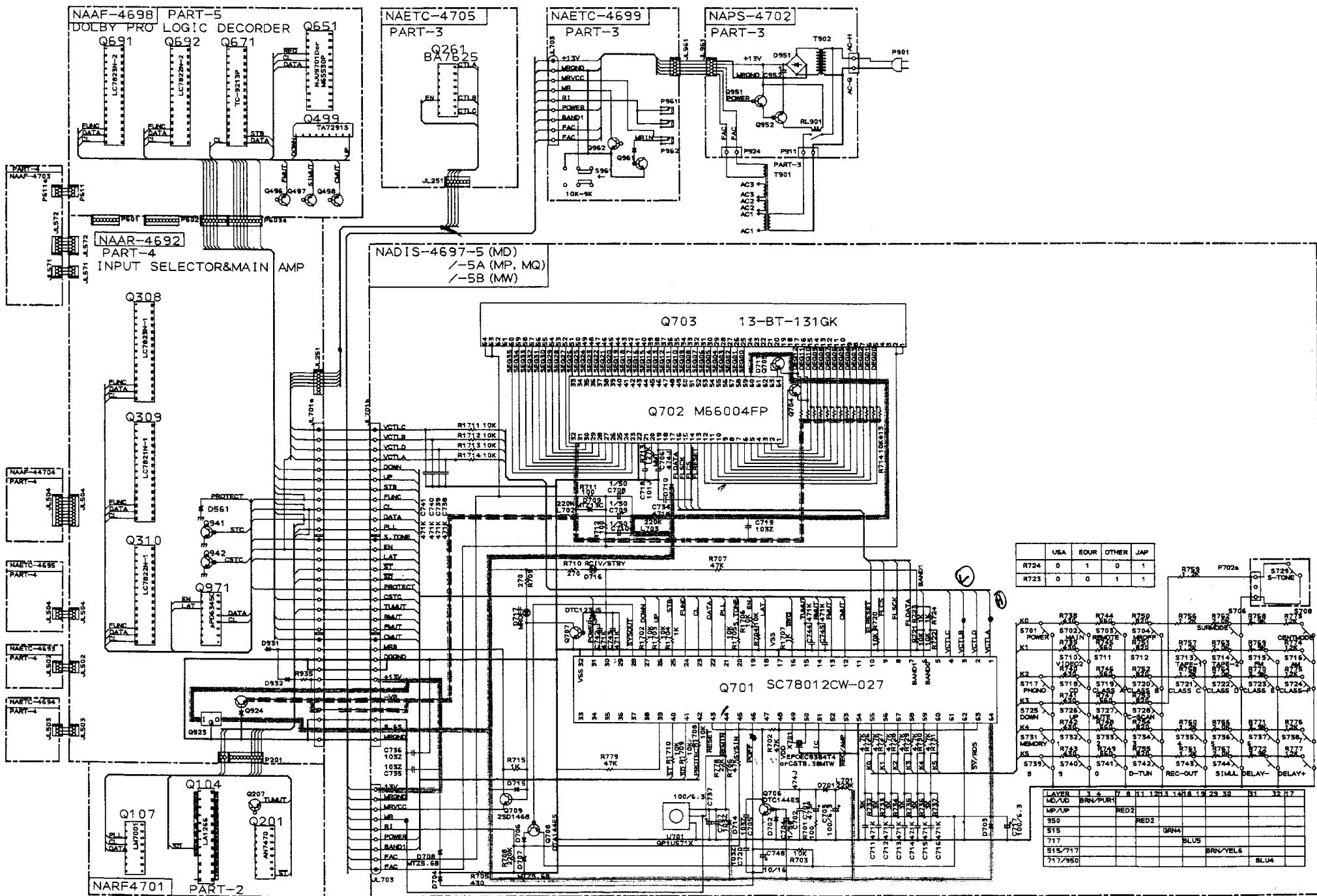
Reference Specification
 FM tuned voltage: 87.9MHz-107.9MHz
 More than 1.3V-Less than 10V
 AM tuned voltage: 530kHz-1710kHz
 $1.4 \pm 0.2\text{V}$ -Less than 9.0V

230V and Worldwide models

Step	AM SG output	Tuning Frequency	Output Indicator	Adjustment point	Adjust for
1		522kHz or 531kHz	Digital DC voltmeter	OSC coil on RF block L151	$1.3 \pm 0.2\text{V}$
2	603kHz 400Hz 30% mod. 60dB/m	603kHz	AC voltmeter	RF coil on RF block L151	Maximum
3	999kHz 400Hz 30% mod. 60dB/m	999kHz	AC voltmeter	L152	Maximum

Reference Specification
 FM tuned voltage: 87.5MHz-108MHz
 More than 1.3V-Less than 10V
 AM tuned voltage: 522kHz-1611kHz
 $1.3 \pm 0.2\text{V}$ -Less than 9.0V
 (230V model)
 AM tuned voltage: 531kHz-1602kHz
 $1.3 \pm 0.2\text{V}$ -Less than 9.0V
 (Worldwide model)

SCHEMATIC DIAGRAM (PART-1)



A

B

C

1

E

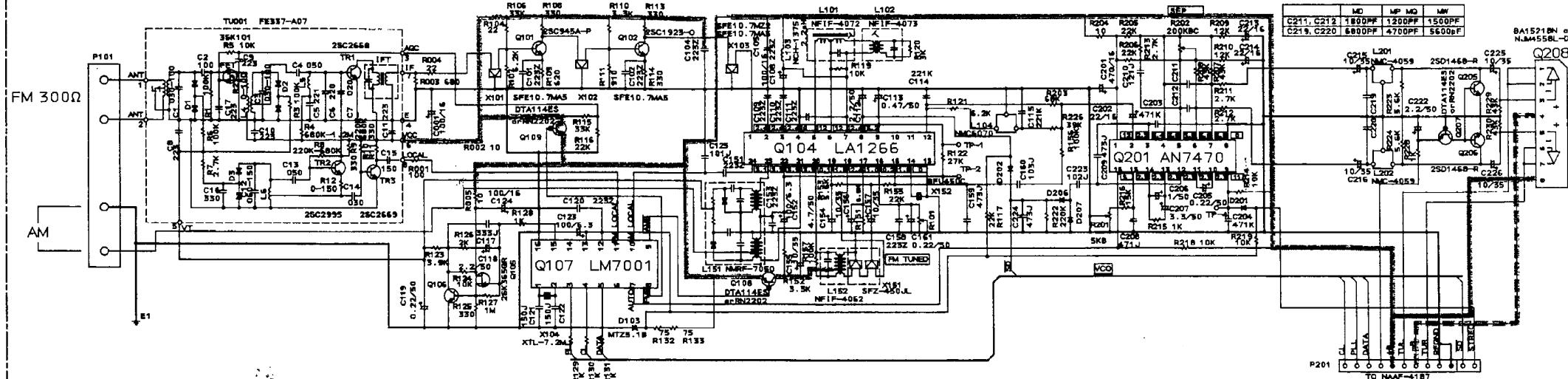
F

G

SCHEMATIC DIAGRAM (PART-2)

TUNER SECTION

NARF-4701-5 (MD)
/-5A (MP, MQ)
/-5B (MW)



FM 750

The diagram shows the internal circuitry of the TU011F415G11 IC. It features a central triangular core with various input and output pins labeled A1, A2, A3, B1, B2, B3, C1, C2, C3, D1, D2, D3, E1, E2, E3, F1, F2, F3, G1, G2, G3, H1, H2, H3, I1, I2, I3, J1, J2, J3, K1, K2, K3, L1, L2, M1, M2, M3, N1, N2, N3, O1, O2, O3, P1, P2, P3, Q1, Q2, Q3, R1, R2, R3, S1, S2, S3, T1, T2, T3, U1, U2, U3, V1, V2, V3, W1, W2, W3, X1, X2, X3, Y1, Y2, Y3, Z1, Z2, Z3, and Z4. The IC is mounted on a lead frame with bond wires connecting the internal nodes to the external pins.

	MD	NP, MW, MQ
Q101 X102 L104 R215-109 R221 R221 R226 C101 C115	No parts	○
R203	○	No parts
R111	9100	5600
TU001	FE337-A07	FE415-Q11
X103	SFE10.7MA	SFE10.7M22
X101 OUT— Q102 Easier	Sorted with J001	

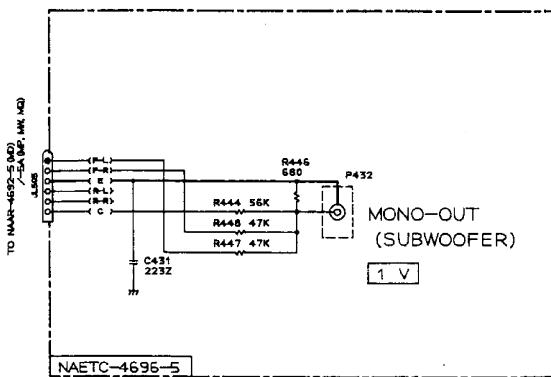
4

114

5

SCHEMATIC DIAGRAM (PART-3)

POWER SUPPLY AND VIDEO SECTION

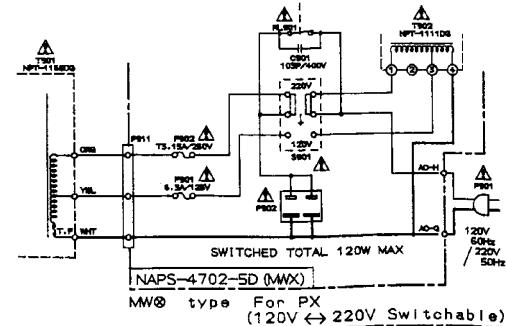
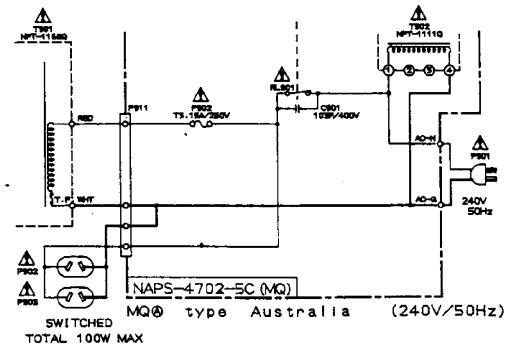
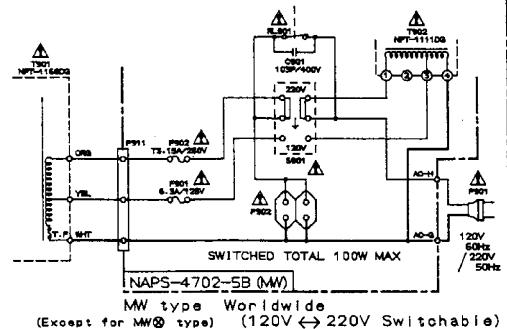
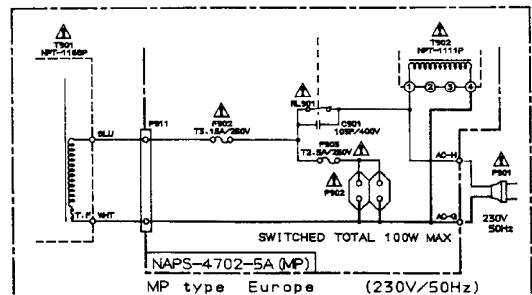
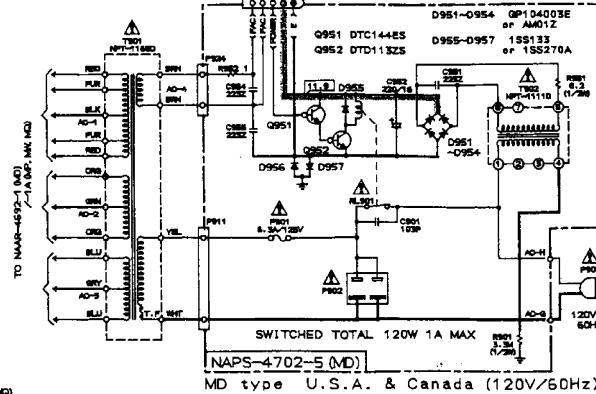
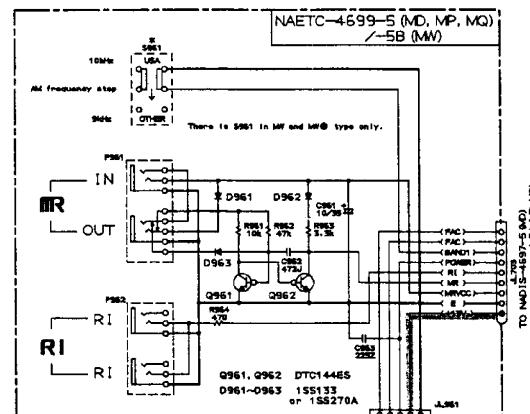
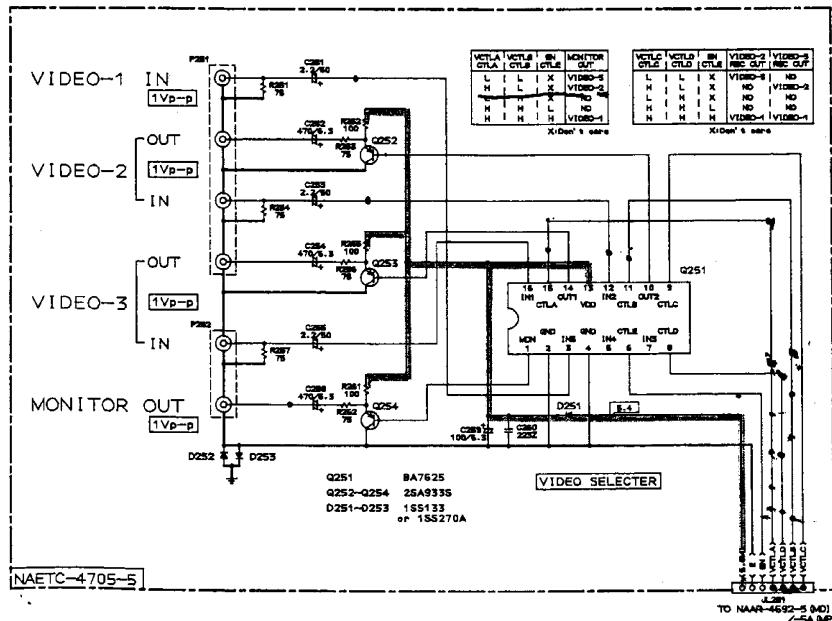


MD type : 120V/60Hz Area
MD \oplus type : U.S.A.
MD \ominus type : Canada

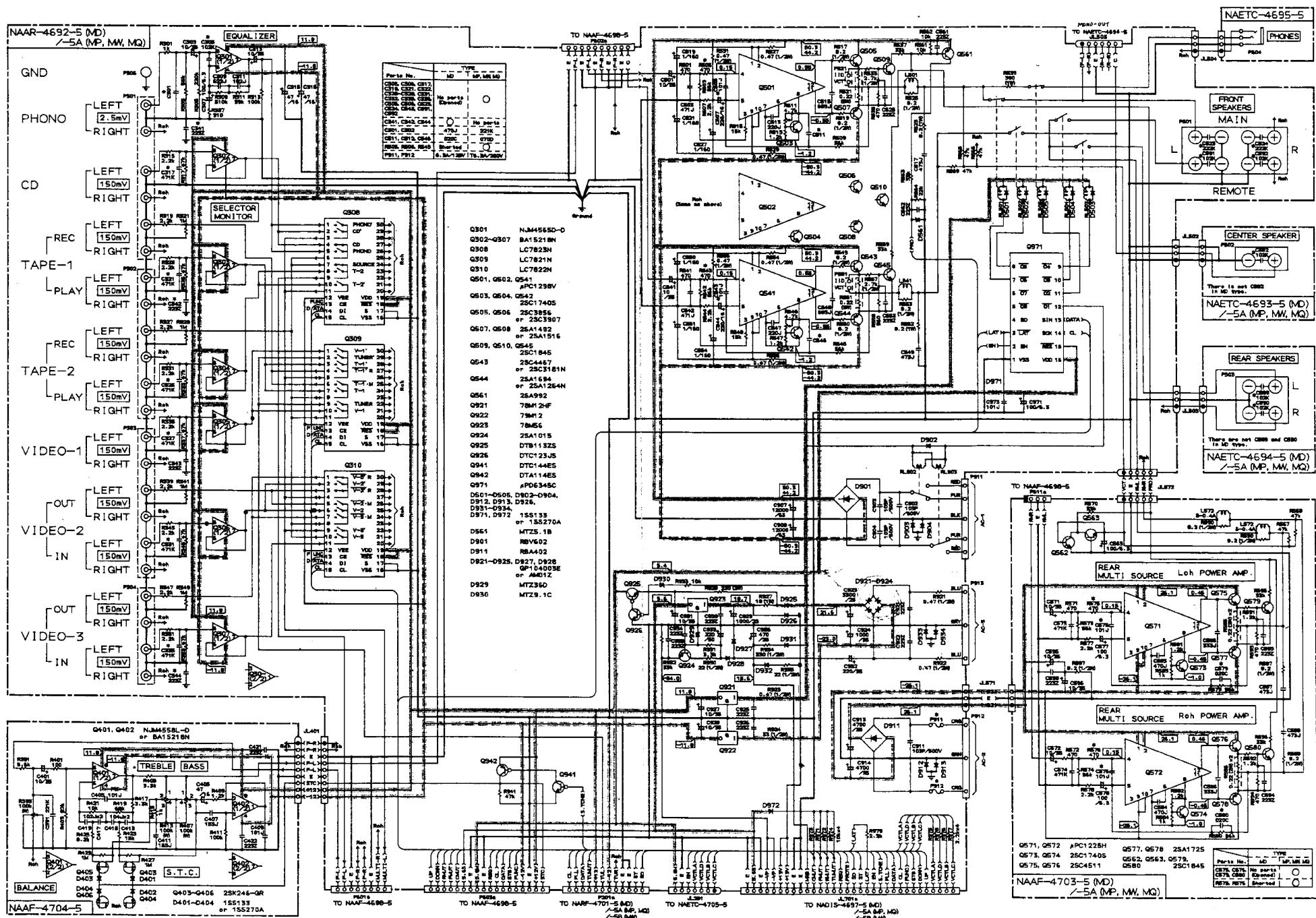
MP type : 230V/50Hz Area
MP type : Europe (except for Germany)
MP \ominus type : Germany (MODEL No. TX-SV9041)

MW type : 120V or 220V Switchable
MW type : Worldwide
MW \ominus type : For PX

MQ type : 240V/50Hz Area
MQ \oplus type : Australia



SCHEMATIC DIAGRAM (PART-4) AUDIO SECTION



A

1

1

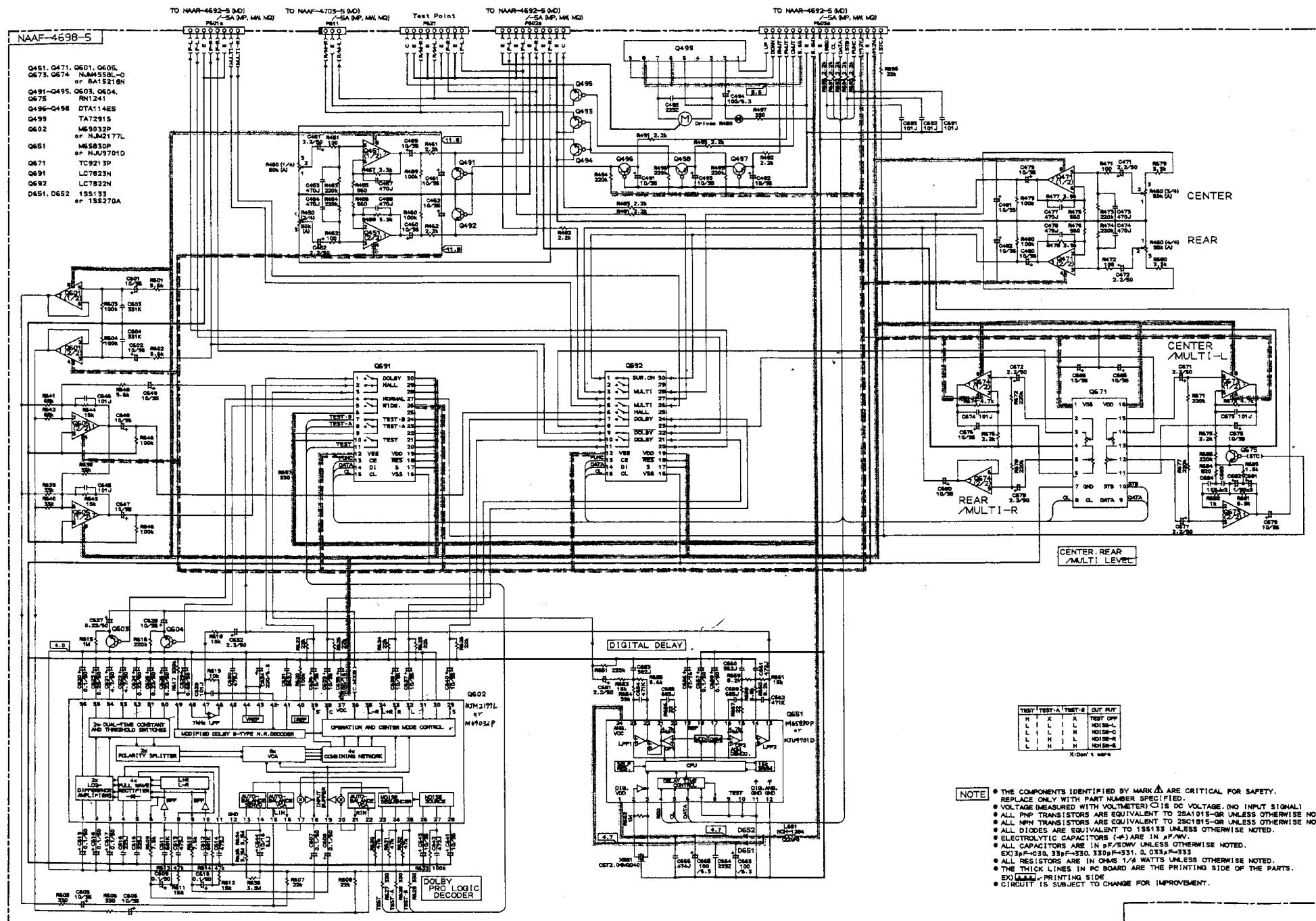
E

2

H

SCHEMATIC DIAGRAM (PART-5)

SURROUND SECTION



NOTE

- THE COMPONENTS IDENTIFIED BY MARK A ARE CRITICAL FOR SAFETY. REPAIR OR OVERHAUL WITH PART NUMBER SPECIFIED.
- ALL DIODES ARE MEASURED WITH VOMETER. C115 DC VOLTAGE (NO INPUT SIGNAL).
- ALL PNP TRANSISTORS ARE EQUIVALENT TO 2SA1015-OR UNLESS OTHERWISE NOTED.
- ALL NPN TRANSISTORS ARE EQUIVALENT TO 2SC1915-OR UNLESS OTHERWISE NOTED.
- ALL DIODES ARE EQUIVALENT TO 1SS133 UNLESS OTHERWISE NOTED.
- ELECTROLYTIC CAPACITORS (-A) ARE IN μ F MV.
- ALL CAPACITORS ARE IN μ F MV UNLESS OTHERWISE NOTED.
- EXP3101 AND EXP3102 ARE 330V 50W UNLESS OTHERWISE NOTED.
- ALL TRANSISTORS ARE IN 1000M WATTS UNLESS OTHERWISE NOTED.
- THE THICK LINES IN PC BOARD ARE THE PRINTING SIDE OF THE PARTS.
- EXP3101 PRINTING SIDE.
- CIRCUIT IS SUBJECT TO CHANGE FOR IMPROVEMENT.

ONKYO CORPORATION

PRINTED CIRCUIT BOARD PARTS LIST

MAIN CIRCUIT PC BOARD (NAAR-4692-5/5A)

CIRCUIT NO.	PART NO.	DESCRIPTION	CIRCUIT NO.	PART NO.	DESCRIPTION
ICs					
Q301	22240191	NJM4565D-D	D912,D913	223205 or 223163	1SS270A or 1SS133
Q302-Q307	22240247	BA15218N	D926	223163	AM01Z or
Q308	22240339	LC7823N	D921-D925	22380046 or 22380035	GP104003E
Q309	22240280	LC7821N	D927,D928	22380035	
Q310	22240270	LC7822N	D929	224453604	MTZ36D
Q501,Q502	22240311	μ PC1298V	D930	224450913	MTZ9.1C
Q541	22240311	μ PC1298V	D931-D934	223205 or 223163	1SS270A or 1SS133
Q921	222780125NEC	78M12HF	D971,D972	Coils	
Q922	222790125	79M12			
Q923	222780565JRC	78M56	L501,L502	231209S	S-0.4A
Q971	22240211	μ PD6345C	L541	231209S	S-0.4A
Transistors					
Q503,Q504	2213284	2SC1740S-R	C303,C304	354761009	10 μ F,35V,Elect.
Q542	2213284	2SC1740S-R	C307,C308	354721019	100 μ F,6.3V,Elect.
Q505,Q506	2201653, 2201654, 2201655, 2202272 or 2202273	★ 2SC3856-O, ★ 2SC3856-Y, ★ 2SC3856-P, ★ 2SC3907-R or ★ 2SC3907-O	C309,C310 C311,C312 C313,C314 C315,C316 C501,C502	374726224 374721824 354761009 354744709 354761009	6200pF \pm 5%,50V,Plastic 1800pF \pm 5%,50V,Plastic 10 μ F,35V,Elect. 47 μ F,16V,Elect. 10 μ F,35V,Elect.
Q507,Q508	2201663, 2201664, 2201665, 2202262 or 2202263	★ 2SA1492-O, ★ 2SA1492-Y, ★ 2SA1492-P, ★ 2SA1516-R or ★ 2SA1516-O	C503,C504 C507,C508 C515,C516 C517,C518 C519-C522	374724714 354742219 374726834 374724734 354700109	470pF \pm 5%,50V,Plastic 220 μ F,16V,Elect. 0.068 μ F \pm 5%,50V,Plastic 0.047 μ F \pm 5%,50V,Plastic 1 μ F,160V,Elect.
Q509,Q510	2211732 or 2211733	2SC1845-F or 2SC1845-E	C527,C528 C541	354700109 354761009	1 μ F,160V,Elect. 10 μ F,35V,Elect.
Q543	2202253, 2202254, 2202256, 2202502 or 2202503	★ 2SC4467-O, ★ 2SC4467-Y, ★ 2SC4467-P, ★ 2SC3181N-R or ★ 2SC3181N-O	C542 C544 C548 C549 C550,C551	374724714 354742219 374726834 374724734 354700109	470pF \pm 5%,50V,Plastic 220 μ F,16V,Elect. 0.068 μ F \pm 5%,50V,Plastic 0.047 μ F \pm 5%,50V,Plastic 1 μ F,160V,Elect.
Q544	2202243, 2202244, 2202246, 2202492 or 2202493	★ 2SA1694-O, ★ 2SA1694-Y, ★ 2SA1694-P, ★ 2SA1264N-R or ★ 2SA1264N-O	C554 C907,C908 C913,C914 C923 C924	354700109 3504258 3504213S 354753329 354761029	1 μ F,160V,Elect. 12000 μ F,63V,Elect. 4700 μ F,35V,Elect. 3300 μ F,25V,Elect. 1000 μ F,35V,Elect.
Q561	2211792 or 2211793	2SA992-F or 2SA992-E	C927,C928 C929	354761009 354751029	10 μ F,35V,Elect. 1000 μ F,25V,Elect.
Q924	2211455	2SA1015-GR	C931	354761009	10 μ F,35V,Elect.
Q925	2213830	DTB113ZS	C932	354762219	220 μ F,35V,Elect.
Q926	2213640	DTC123JS	C933	354782219	220 μ F,50V,Elect.
Q941	221282	DTC144ES	C936	354754719	470 μ F,25V,Elect.
Q942	2213510	DTA114ES	C971	354721019	100 μ F,6.3V,Elect.
Diodes					
D501-D505	223205 or	1SS270A or	R511,R512	5210261	N06HR 5KBC,Trim
D902-D904	223163	1SS133	R517-R520	452530824	8.2 ohm,1/2W,Metal
D561	224450512	MTZ5.1B	R521,R522	4000132	0.22 ohm \times 2,5.5W + 5.5W,Metal plate
D901	22380038	RBV602	R523,R524	451630824	8.2 ohm,1W,Metal
D911	22380048	RBA402	R525,R526	452530824	8.2 ohm,1/2W,Metal
			R527-R532	452534794	0.47 ohm,1/2W,Metal

CAUTION: Replacement for transistor of mark \star , if necessary, must be made from the same beta group (H β) as the original type.

CIRCUIT NO.	PART NO.	DESCRIPTION
Resistors		
R533,R534	442522724	2.7 kohm,1/2W,Metal oxide
R539,R540	441623914	390 ohm,1W,Metal oxide
R546	5210261	N06HR 5KBC,Trim
R549,R550	452530824	8.2 ohm,1/2W,Metal
R551	4000132	0.22 ohm \times 2,5.5W + 5.5W,Metal plate
R552	451630824	8.2 ohm,1W,Metal
R553	452530824	8.2 ohm,1/2W,Metal
R554-R556	452534794	0.47 ohm,1/2W,Metal
R557	442522724	2.7 kohm,1/2W,Metal oxide
R921-R923	452534794	0.47 ohm,1/2W,Metal
R924	442523304	33 ohm,1/2W,Metal oxide <D>
	442530824	8.2 ohm,1/2W,Metal <P/W/Q>
R927	441621804	18 ohm,1W,Metal oxide
R928	441722214	220 ohm,2W,Metal oxide
R930,R935	442522204	22 ohm,1/2W,Metal oxide
R934	442523314	330 ohm,1/2W,Metal oxide
Relays		
RL501	25065339	NRL-2P5A-DC24-046
RL502	25065379	NRL-1P5A-DC24-058
RL503,RL504	25065339	NRL-2P5A-DC24-046
RL505	25065470	NRL-2P1.25A-DC24-079
RL902,RL903	25065435	Δ NRL-1P10A-DC24-072
Fuses		
F911,F912	252166Y	Δ 6.3A-UL/T-237 <D>
	252079	Δ 6.3A-SE-EAK <P/W/Q>
Fuseholders		
F911A,F912A	25050065	Δ YSH403T
Fuse labels		
	29360622	T6.3A/250V <P/W/Q>
Plugs		
P201A	25055500	NPLG-12P475
P601A	25055498	NPLG-8P473
P602A	25055499	NPLG-10P474
P603A	25055503	NPLG-18P478
Terminals		
P301-P303	25045300	NPJ-6PDBL-159
P304	25045303	NPJ-4PDBL-162
P501	25060125	NTM-8PDML058
Wire traps		
JL401	25050531	NSCT-9P354
JL701A	25050612 or 25050705	NSCT-32P423 or NSCT-32P509

CENTER SPEAKER TERMINAL PC BOARD (NAETC-4693-5/5A)

CIRCUIT NO.	PART NO.	DESCRIPTION
P502	25060114	NTM-2PDML048,Speaker terminal

SPEAKER TERMINAL PC BOARD (NAETC-4694-5/5A)

CIRCUIT NO.	PART NO.	DESCRIPTION
P503	25060161	NTM-4PDML087,Speaker terminal

NOTE: THE COMPONENTS IDENTIFIED BY MARK Δ ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE ONLY WITH PART NUMBER SPECIFIED.

HEADPHONE TERMINAL PC BOARD (NAETC-4695-5)

CIRCUIT NO.	PART NO.	DESCRIPTION
P504	25045255	YKB26-5009,Headphone terminal

OUTPUT TERMINAL PC BOARD (NAETC-4696-5)

CIRCUIT NO.	PART NO.	DESCRIPTION
P432	25045302	NPJ-1PDBL161,Terminal

DISPLAY CIRCUIT PC BOARD (NADIS-4697-5/5A/5B)

CIRCUIT NO.	PART NO.	DESCRIPTION
Remote control sensor		

U701	24130007	GP1U571X
FL tube		

Q703	212120	13-BT-131GK
ICs		

Q701	22240684	SC78012CW-027
Q702		

Q702	22240685R9	M66004FP
Transistors		

Q704,Q705	2213284	2SC1740S-R
Q706		

Q706	221282	DTC144ES
Q707		

Q707	2213640	DTC123JS
Q708		

Q708	2213510	DTA114ES
Q709		

Q709	2212794	2SD1468-R
Diodes		

D701-D704	223205 or	1SS270A or
D706,D710		

D706,D710	223163	1SS133
D707,D708		

D707,D708	224450562	MTZ5.6B
D709		

D709	224451303	MTZ13C
D713-D715		

D713-D715	223205 or	1SS270A or
D716,D717		

D716,D717	225142	SEL2913K,LED
Resonator		

X701	3010205	CST8.38MTW, Ceramic
Coils		

L701-L703	233411K220	NCH-1387 220K
Capacitors		

C701	3000074	0.047F,5.5V,Super
C702,C706		

C702,C706	375524744	0.47 μ F \pm 5%,50V,Plastic
C703		

C703	354721019	100 μ F,6.3V,Elect.
C704		

C704	354780109	1 μ F,50V,Elect.
C708-C710		

C708-C710	354780109	1 μ F,50V,Elect.
C717,C737		

C717,C737	354721019	100 μ F,6.3V,Elect.
C748		

C748	354741009	10 μ F,16V,Elect.
Resistor		

R714	49163103413	10 kohm \times 13,1/10W,Array
Switches		

S701-S704	25035548	NPS-111-S510
S706,S708		

S710-S728	25035548	NPS-111-S510
S731-S746		

S731-S746	25035548	NPS-111-S510
Plug		

P702A	25055510	NPLG-3P485

NOTE: <D>: 120V model only
 <P>: 230V model only
 <W>: Worldwide model only
 <Q>: 240V model only

NOTE: THE COMPONENTS IDENTIFIED BY MARK  ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE ONLY WITH PART NUMBER SPECIFIED.

CIRCUIT NO.	PART NO.	DESCRIPTION	CIRCUIT NO.	PART NO.	DESCRIPTION
	Wire trap			Capacitors	
JL701B	25050578 or	NSCT-32P389 or	C629	354786899	0.68 μ F,50V,Elect.
	25050726	NSCT-32P530	C630	374724734	0.047 μ F \pm 5%,50V,Plastic
	Holders		C631	374725624	5600pF \pm 5%,50V,Plastic
D712A,D716A	27190843		C632	354780229	2.2 μ F,50V,Elect.
Q703A	27190913Y		C634	354722219	220 μ F,6.3V,Elect.
			C635	354741019	100 μ F,16V,Elect.
SURROUND CIRCUIT PC BOARD (NAAF-4698-5/5A)			C636-C641	354761009	10 μ F,35V,Elect.
CIRCUIT NO.	PART NO.	DESCRIPTION	C642	374724724	4700 pF \pm 5%,50V,Plastic
	ICs		C643	354761009	10 μ F,35V,Elect.
Q451,Q471	22240247 or	BA15218N or	C644	392841007	10 μ F,16V,Elect.
Q601,Q605	22240293	NJM4558L-D	C647-C649	354761009	10 μ F,35V,Elect.
Q499	22240239	TA7291S	C651	354780229	2.2 μ F,50V,Elect.
Q602	22240683 or	NJM2177L or	C653	374723924	3900 pF \pm 5%,50V,Plastic
	22240692	M69032P	C655	374726834	0.068 μ F \pm 5%,50V,Plastic
Q651	22240686 or	M65830P or	C656	354744709	47 μ F,16V,Elect.
	22240687	NJU9701D	C657,C658	353781099	0.1 μ F,50V,Elect.
Q671	22240266	TC9213P	C659	374726834	0.068 μ F \pm 5%,50V,Plastic
Q673,Q674	22240247 or	BA15218N or	C660	374725624	5600pF \pm 5%,50V,Plastic
	22240293	NJM4558L-D	C661	374724724	4700 pF \pm 5%,50V,Plastic
Q691	22240339	LC7823N	C663,C665	354721019	100 μ F,6.3V,Elect.
Q692	22240270	LC7822N	C666	375524744	0.47 μ F \pm 5%,50V,Plastic
	Transitors		C671,C672	354780229	2.2 μ F,50V,Elect.
Q491-Q495	2213631 or	RN1241-A or	C675,C676	354761009	10 μ F,35V,Elect.
Q603,Q604	2213632	RN1241-B	C677,C678	354780229	2.2 μ F,50V,Elect.
Q496-Q498	2213510	DTA114ES	C679,C680	354761009	10 μ F,35V,Elect.
Q675	2213631 or	RN1241-A or	C681,C682	354780109	1 μ F,50V,Elect.
	2213632	RN1241-B	C683,C684	374721034	0.01 μ F \pm 5%,50V,Plastic
	Diodes		C685,C686	354761009	10 μ F,35V,Elect.
D651,D652	223205 or	ISS270A or		Resistor	
	223163	ISS133	R450	5144017Y	N16RQL50KA25F,Variable,Volume
	Resonator			Sockets	
X651	3010217	CST2.04MG040	P601	25050445	NSCT-8P269
	Coil		P602	25050446	NSCT-10P270
L651	233411K220	NCH-1387	P603	25050450	NSCT-18P274
	Capacitors		P611	2000802UL	NSAS-6P758
C451,C452	354780229	2.2 μ F,50V,Elect.		Plug	
C459-C462	354761009	10 μ F,35V,Elect.	P621	25055411	NPLG-9P393
C471,C472	354780229	2.2 μ F,50V,Elect.			
C479-C482	354761009	10 μ F,35V,Elect.	RI/MR TERMINAL PC BOARD (NAETC-4699-5)		
C491-C493	354761009	10 μ F,35V,Elect.	CIRCUIT NO.	PART NO.	DESCRIPTION
C494	354721019	100 μ F,6.3V,Elect.		Transistors	
C601,C602	354761009	10 μ F,35V,Elect.	Q961,Q962	221282	DTC144ES
C605,C606	354761009	10 μ F,35V,Elect.		Diodes	
C607-C610	353781099	0.1 μ F,50V,Elect.	D961-D963	223205 or	ISS270A or
C613,C614	374724734	0.047 μ F \pm 5%,50V,Plastic		223163	ISS133
C615,C616	374722234	0.022 μ F \pm 5%,50V,Plastic		Capacitors	
C617-C620	353781099	0.1 μ F,50V,Elect.	C961	354761009	10 μ F,35V,Elect.
C621,C622	354780479	4.7 μ F,50V,Elect.	C962	374724724	4700pF \pm 5%,50V,Plastic
C623-C627	354782299	0.22 μ F,50V,Elect.		Slide switch	
C628	354761009	10 μ F,35V,Elect.	S961	25065286	NSS-22112 <W>

NOTE: <D>: 120V model only
 <P>: 230V model only
 <W>: Worldwide model only
 <Q>: 240V model only

NOTE: THE COMPONENTS IDENTIFIED BY MARK  ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE ONLY WITH PART NUMBER SPECIFIED.

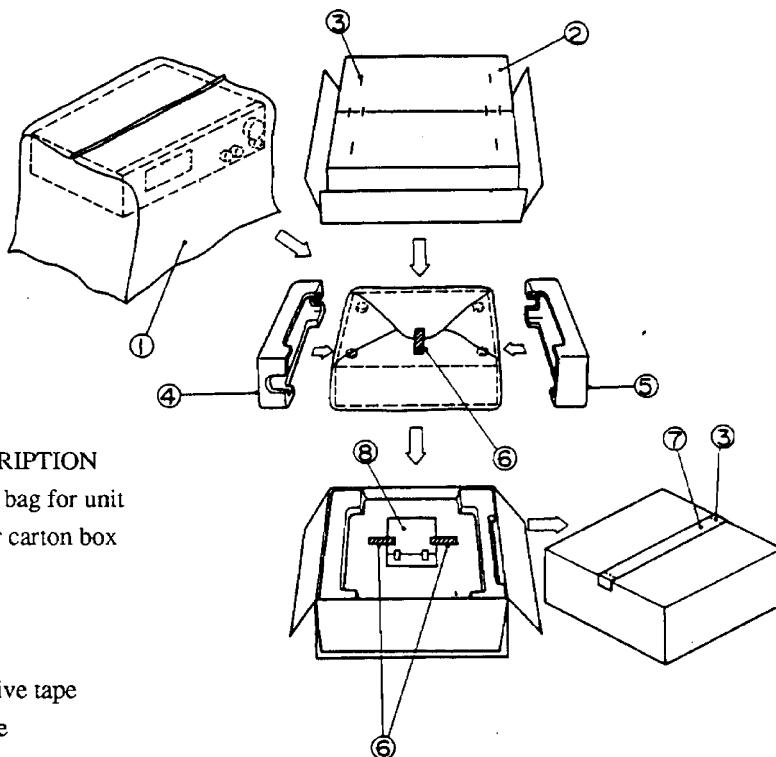
CIRCUIT NO.	PART NO.	DESCRIPTION	CIRCUIT NO.	PART NO.	DESCRIPTION
	Resonator			Jacks	
X104	3010141 or 3010158	XTL-7.2M,Crystal	P961	25045293	HSJ-1003-01-012
	Capacitors		P962	25045172	HSJ-1003-01-020
C001	354741019	100 μ F,16V,Elect.	JL961	25050527	NSCT-5P350
C108,C124	354741019	100 μ F,16V,Elect.		STC SWITCH PC BOARD (NASW-4700-5)	
C112,C118	354780229	2.2 μ F,50V,Elect.	CIRCUIT NO.	PART NO.	DESCRIPTION
C113	354784799	0.47 μ F,50V,Elect.	S729	25035548	NPS-111-S510,Switch
C117	374723334	0.033 μ F \pm 5%,50V,Plastic	P702B	25050454	NSCT-3P278,Socket
C119,C205	354782299	0.22 μ F,50V,Elect.		TUNER CIRCUIT PC BOARD (NARF-4701-5/5A/5B)	
C123,C152	354721019	100 μ F,6.3V,Elect.	CIRCUIT NO.	PART NO.	DESCRIPTION
C154	354780479	4.7 μ F,50V,Elect.		Front end	
C155-C157	354761009	10 μ F,35V,Elect.	TU001	240088	FE337-A07 <D>
C159	374724734	0.047 μ F \pm 5%,50V,Plastic		240089	FE415-G11 <P/W/Q>
C160	374721034	0.01 μ F \pm 5%,50V,Plastic		ICs	
C161	353782299	0.22 μ F,50V,Elect.	Q104	22240039	LA1266
C201	354744719	470 μ F,16V,Elect.	Q107	22240090	LM7001
C202	354742209	22 μ F,16V,Elect.	Q201	22240242	AN7470
C206	353780109	1 μ F,50V,Elect.	Q208	22240247 or 22240293	BA15218N or NJM4558L-D
C207	354780339	3.3 μ F,50V,Elect.		Transistors	
C208	370134714	470pF \pm 5%,100V,Plastic	Q101	2210746	2SC945A-P <P/W/Q>
C209,C224	374724734	0.047 μ F \pm 5%,50V,Plastic	Q102	2211723	2SC1923-O
C211,C212	374721824	1800pF \pm 5%,50V,Plastic <D>	Q105	2212445	2SK365-GR
	374721224	1200pF \pm 5%,50V,Plastic <P/Q>	Q106	2213284	2SC1740S-R
	374721524	1500pF \pm 5%,50V,Plastic <W>	Q108,Q109	2213510	DTA114ES
C213,C214	354742209	22 μ F,16V,Elect.	Q205,Q206	2212794	2SD1468-R
C215,C216	354761009	10 μ F,35V,Elect.	Q207	2213510	DTA114ES
C219,C220	374726824	6800pF \pm 5%,50V,Plastic <D>		Diodes	
	374724724	4700pF \pm 5%,50V,Plastic <P/Q>	D103	224450512	MTZ5.1B
	374725624	5600pF \pm 5%,50V,Plastic <W>	D201,D202	223205 or	1SS270A or
C222	354780229	2.2 μ F,50V,Elect.	D206,D207	223163	1SS133
C223	374721024	1000pF \pm 5%,50V,Plastic		Transformers	
C225,C226	354761009	10 μ F,35V,Elect.	L101	233401	NFIF-4072
	Trim resistors		L102	233402	NFIF-4073
R101	5210266	N06HR100KBC	L152	232139	NMIF-4062
R201	5210261	N06HR5KBC		Coils	
R202	5210267	N06HR200KBC	L103	233411M022	NCH-1375 022M
	Terminal		L104	233383	NMC-6070 <P/W/Q>
P101	25060160	NTM-4PDMN086 <D>	L151	232148	NMRF-7050
	25060117	NTM-2PDMN051 <P/W/Q>	L201,L202	233355A	NMC-4059
P201	25050447	NSCT-12P271		Ceramic filters	
POWER SUPPLY CIRCUIT PC BOARD (NAPS-4702-5/5A/5B/5C/5D)					
CIRCUIT NO.	PART NO.	DESCRIPTION	X101,X103	3010071	SFE10.7MA5 <D>
	Transistors		X101,X102	3010071	SFE10.7MA5 <P/W/Q>
Q951	221282	DTC144ES	X103	3010130	SFE10.7MZ2A <P/W/Q>
Q952	2213650	DTD113ZS	X151	3010123	SFZ-450JL
	Diodes		X152	3010076	BFU-450C
D951-D954	22380046 or 22380035	AM01Z or GP104003E			

CAUTION: Replacement for transistor of mark \star , if necessary, must be made from the same beta group (H_{FE}) as the original type.

NOTE: THE COMPONENTS IDENTIFIED BY MARK Δ ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE ONLY WITH PART NUMBER SPECIFIED.

CIRCUIT NO.	PART NO.	DESCRIPTION	CIRCUIT NO.	PART NO.	DESCRIPTION
		Diodes			Capacitors
D955-D957	223205 or 223163	1SS270A or 1SS133	C587,C588 C595,C596	374724734 354761009	0.047 μ F $\pm 5\%$,50V,Plastic 10 μ F,35V,Elect.
		Power transformer			Resistors
T902	2300670 2300671 2300672 2300673	Δ NPT-1111D <D> Δ NPT-1111P <P> Δ NPT-1111DG <W> Δ NPT-1111Q <Q>	R585,R586 R587-R590 R597	4000131 452530824 452530824	0.22 ohm \times 2,2W+2W,Metal plate 8.2 ohm,1/2W,Metal 8.2 ohm,1/2W,Metal
		Relay	P611A	25055234	Plug
RL901	25065248	Δ NRL-1P15A-DC12-29	JL571	25050280	NPLG-3P218
		Capacitors	JL572	25050282	Wire traps
C901	3500065A	Δ DE7150FZ103PAC400/125V,IS			NSCT-3P108
C952	354742219	220 μ F,16V,Elect.			NSCT-5P110
		Resistors			TONE CONTROL CIRCUIT PC BOARD (NAAF-4704-5)
R901	431523355	Δ 3.3 Mohm,1/2W, Solid <D>	CIRCUIT NO.	PART NO.	DESCRIPTION
R951	452530824	Δ 8.2 ohm, 1/2W, Metal	Q401,Q402	22240247 or 22240293	BA15218N or NJM4558L-D
		Fuse			Transistors
F901	252166Y	Δ 6.3A-UL/T-237 <D/W>	Q403-Q406	2211945	2SK246-GR
F902	252076	Δ 3.15A-SE-EAK <P/W/Q>			Diodes
F903	252075	Δ 2.5A-SE-EAK <P>	D401-D404	223205 or 223163	1SS270A or 1SS133
		Fuseholders			Capacitors
F901A	25050065	Δ YSH403T <D/W>	C401,C402	354761009	10 μ F,35V,Elect.
F902A	25050065	Δ YSH403T <P/W/Q>	C405,C406	354744709	47 μ F,16V,Elect.
F903A	25050065	Δ YSH403T <P>	C407,C408	374721534	0.015 μ F $\pm 5\%$,50V,Plastic
		AC outlet	C411,C412	374721534	0.015 μ F $\pm 5\%$,50V,Plastic
P902	25050409 25050640	Δ NSCT-4P234 <D> Δ NSCT-4P451 <P/W>	C413-C416	374721044	0.1 μ F $\pm 5\%$,50V,Plastic
		Slide switch	C417-C420	374721024	1000pF $\pm 5\%$,50V,Plastic
S901	25065437	Δ NSS-22157P <W>			Variable resistors
			R393	5104225	N11RGLC250KWT22Z,Balance
			R407,R413	5104230	N14RLC100KWT22Z,Tone
		REAR AMPLIFIER PC BOARD (NAAF-4703-5)			
					VIDEO CIRCUIT PC BOARD (NAETC-4705-5)
CIRCUIT NO.	PART NO.	DESCRIPTION	CIRCUIT NO.	PART NO.	DESCRIPTION
		ICs			IC
Q571,Q572	22240108	μ PC1225H	Q251	22240373	BA7625
		Transistors	Q252-Q254	2213354	Transistors
Q562,Q563	2211732 or	2SC1845-F or			2SA933S-R
Q579,Q580	2211733	2SC1845-E	D251	22380046 or 22380035	Diodes
Q573,Q574	2213284	2SC1740S-R			Capacitors
Q575,Q576	2202063, 2202064 or 2202066	\star 2SC4511-O, \star 2SC4511-Y or \star 2SC4511-P	C251,C253,C255	354780229 354724719 354724719	2.2 μ F,50V,Elect. 470 μ F,6.3V,Elect. 470 μ F,6.3V,Elect.
Q577,Q578	2202053, 2202054 or 2202056	\star 2SA1725-O, \star 2SA1725-Y or \star 2SA1725-P	C252,C254	354724719 354724719	100 μ F,6.3V,Elect.
		Coils	C258	354721019	Terminals
L571,L572	231209S	S-0.4A	C259	25045339	NPJ-4PDYE-190
		Capacitors		25045395Y	NPJ-2PDYE-221
C563	354721019	100 μ F,6.3V,Elect.			
C571,C572	354761009	10 μ F,35V,Elect.			
C577,C578	354721019	100 μ F,6.3V,Elect.			
C585,C586	374723334	0.033 μ F $\pm 5\%$,50V,Plastic			

PACKING VIEW



REF.NO.	PART NO.	DESCRIPTION
1	29100034-1	Styren bag for unit
2	29052785Y	Master carton box
3	282301	Staple
4	29091615BY	Pad R
5	29091614BY	Pad L
6	261504	Adhesive tape
7	29110071	PP tape
8	Accessory bag ass'y 29341975Y 29341978Y 29341980Y 2010200 3010054 24140252Y 232140 292111Y 292112Y 25065462Y 25055018 25055251 29365019A 29365021 29358002K 29100097-1Y	Instruction manual Instruction manual <P/W/C> Instruction manual <W> Connection cord RI UM-3,Two batteries RC-252S,Remote control transmitter NMA-3057,AM loop antenna FM antenna <D> FM antenna <P/W/Q> YAE21-0237, FM antenna adaptor <W/Q> CV-K-1,Conversion plug <W> CV-CP,Conversion plug <PX> Warranty card <N> Warranty card <PX> Service station list <N/PX> Styren bag for accessory

NOTE: <D>:120V model only
<P>:230V/240V models only
<W>:Worldwide model only
<N>:U.S.A. model only
<PX>:PX model only
<C>:Canadian model only

ONKYO CORPORATION

International Division: 2-1, Nishin-cho, Neyagawa-shi, OSAKA 572, JAPAN

Tel: 0720-31-8133 Fax: 0720-34-1340

ONKYO U.S.A. CORPORATION

200 Williams Drive, Ramsey, N.J. 07446, U.S.A.

Tel: 201-825-7950 Fax: 201-825-8150

ONKYO Europe GmbH

Immeuble Le DIAMANT, Domaine Technologique De Saclay, 4 rue Rene Razet,
91892 SACLAY, FRANCE Tel: (1)69 33 14 15 Fax: (1)69 41 29 66

ONKYO FRANCE S.A.R.L.

Immeuble Le DIAMANT, Domaine Technologique De Saclay 4 rue Rene Razet,
91892 SACLAY, FRANCE Tel: (1)69 41 35 10 Fax: (1)69 41 35 84